

# Environmental Protection Agency

## § 85.2229

Channel	Range	Accuracy	Noise	Repeat-ability
HC, as hexane .....	0-400 ±12 .....	6	8	
	401-1000±30 .....	10	15	
	1001-2000±80 .....	20	30	
CO, % .....	0-2.00±0.06 .....	0.02	0.03	
	2.01-5.00±0.15 .....	.06	.08	
	5.01-9.99±0.40 .....	.10	.15	
CO <sub>2</sub> % .....	0-4.0±0.6 .....	.2	.3	
	4.1-14.0±0.5 .....	.2	.3	
	14.1-16.0±0.6 .....	.2	.3	
NO, ppm .....	0-1000±32 .....	16	20	
	1001-2000±60 .....	25	30	
	2001-4000±120 .....	50	60	

(2) *Minimum analyzer display resolution.* The analyzer electronics must have sufficient resolution to achieve the level of accuracy indicated in paragraphs (c)(2)(i) through (v) of this section.

- (i) HC 1 ppm HC as hexane.
- (ii) CO 0.01% CO.
- (iii) CO<sub>2</sub> 0.1% CO<sub>2</sub>.
- (iv) NO 1 ppm NO.
- (v) RPM 1 rpm.

(3) *Response time.* The response time from the probe to the display for HC, CO, and CO<sub>2</sub> analyzers may not exceed eight seconds to 90 percent of a step change in input. For NO analyzers, the response time may not exceed twelve seconds to 90 percent of a step change in input.

(4) *Display refresh rate.* Dynamic information being displayed must be refreshed at a minimum rate of twice per second.

(5) *Interference effects.* The interference effects for non-interest gases may not exceed ±10 ppm for hydrocarbons, ±0.05 percent for carbon monoxide, ±0.20 percent for carbon dioxide, and ±20 ppm for oxides of nitrogen.

(6) *Low flow indication.* The analyzer must provide an indication when the sample flow is below the acceptable level. The sampling system must be equipped with a flow meter (or equivalent) that indicates sample flow degradation when meter error exceeds three percent of full scale, or causes system response time to exceed 13 seconds to 90 percent of a step change in input, whichever is less.

(7) *Engine speed detection.* The analyzer must utilize a tachometer capable of detecting engine speed in revolutions per minute (rpm) with a 0.5 sec-

ond response time and an accuracy of ±3 percent of the true rpm.

(8) *Test and mode timers.* The analyzer must be capable of simultaneously determining the amount of time elapsed in a test, and in a mode within that test.

(9) *Sample rate.* The analyzer must be capable of measuring exhaust concentrations of gases specified in this section at a minimum rate of once every 0.75 second.

(d) *Demonstration of conformity.* The analyzer must be demonstrated to the satisfaction of the inspection program manager, through acceptance testing procedures, to meet the requirements of this section and to be capable of being maintained as required in §85.2233.

[58 FR 58413, Nov. 1, 1993; 59 FR 33913, July 1, 1994]

### §§ 85.2226-85.2228 [Reserved]

### § 85.2229 Dynamometer—EPA 81.

(a) *Applicability.* The requirements of this subsection apply to short tests conducted under Emissions Performance Warranty through December 31, 1993. The requirements of §85.2230 apply concurrently until December 31, 1993, after which the requirements of §85.2230 are solely in effect. The following exceptions apply: in a state where the Administrator has approved a SIP revision providing for implementation of a basic centralized program meeting the requirements of part 51, subpart S of this chapter, according to the schedule specified in §51.373 of this chapter, the requirements of this section are concurrently in effect until June 30, 1994 for 1995 and earlier model year vehicles or engines; in a state